February 20, 1998

M E M O R A N D U M

TO: Orville D. Green, Assistant Administrator
Air and Hazardous Waste Division

FROM: Susan J. Richards, Chief
Air Quality Permitting Bureau

SUBJECT: Issuance of Tier II Operating Permit Modification #0420-0002-002 to Kerr-McGee Chemical LLC (Catalyst Hammer Mill)

PROJECT DESCRIPTION

Kerr-McGee proposes to increase the throughput limit and operating hours limitation on the catalyst hammer mill at their Soda Springs facility.

DISCUSSION

On February 2, 1998, DEQ received a Permit to Construct application from Kerr-McGee Chemical LLC (Kerr-McGee) for a modification to their operating permit.

FEES

This facility is a major facility as defined in IDAPA 16.01.01.008.14 (*Rules for the Control of Air Pollution in Idaho*). Therefore, registration fees are applicable in accordance with IDAPA 16.01.01.526. Based on review of the August 6, 1997, Air Emission Database Master List, Kerr-McGee has paid registration fees for approximately 215 tons required to be registered in accordance with IDAPA 16.01.01.527. This modification will result in an increase of one ton per year of pollutants required to be registered.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, the Bureau recommends that Kerr-McGee Chemical be issued a modified section to Operating Permit #0420-0002-002 with the requested changes. No public comment period is recommended, no entity has requested a comment period, and PSD requirements do not apply because this is not a major modification.

ODG\SJR\RM:jrj...permits\k-mcgee\k-mcgee.ISS

cc: Pocatello Regional Office
Source File
COF

February 20, 1998

M E M O R A N D U M

TO: Susan J. Richards, Chief
Air Quality Permitting Bureau
Air & Hazardous Waste

FROM: Ray McDougal, Air Quality Engineer
Air Quality Permitting Bureau
New Source Review Section

THROUGH: Daniel Salgado, Air Quality Permits Manager
Air Quality Permitting Bureau
Operating Permits Section

SUBJECT: Technical Analysis for Modified Tier II Operating Permit #0420-0002-002
Kerr-McGee Chemical LLC (Catalyst Hammer Mill)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (*Rules for the Control of Air Pollution in Idaho*) for issuing Operating Permits.

PROJECT DESCRIPTION

Kerr-McGee Chemical LLC (Kerr-McGee) proposes to increase the throughput limit and operating hours limitation on the Catalyst Hammer Mill at their Soda Springs facility. The operating permit (OP) has not been updated to current permitting format because only one section of the OP requires changes. Current permitting format will be incorporated into the Tier I OP, which is to be issued at the end of 1999.

SUMMARY OF EVENTS

On February 2, 1998, DEQ received a Permit to Construct (PTC) application from Kerr-McGee for a modification to their OP.

DISCUSSION

1. Area Classification

   Kerr-McGee's facility is located in Caribou County near Soda Springs. Caribou County is located in Air Quality Control Region (AQCR) 61 and Zone 12. The area is designated as an attainment or unclassifiable area for all criteria pollutants.

2. Process Description

   Catalyst and other vanadium bearing materials are ground and transported in a dedicated circuit. The catalyst is ground in a hammer mill then pneumatically transported to a storage bin. From the storage bin, the ground catalyst is transferred to roasters.

3. Emission Estimates

   Emissions from this equipment are controlled by baghouse which is guaranteed to control particulate emissions to 0.02 grains per dry standard cubic feet. Therefore, increasing the throughput limit to 1.5 tons per hour will not result in an hourly emissions increase. The grain loading was used previously to determine the hourly emission rate of 0.42 pounds per hour. This hourly emission rate will not change, but increasing the hours of operation to 8,760 hours per year will result in an annual emission increase from 0.38 tons per year to 1.84 tons per year. The net emission increase is 1.46 tons per year.

4. Modeling

A modeling analysis was performed using the EPA approved SCREEN2 modeling software, results of which are provided in Appendix A. Modeling parameters were provided by the applicant. According to the SCREEN2 modeling results, the maximum daily and annual ambient impacts for PM-10 emissions resulting from this modification are 11.9 $\mu g/m^3$ and 2.4 $\mu g/m^3$, respectively. These impacts are well below the national ambient air quality standards.

5. Facility Classification

This facility is a major facility as defined in IDAPA 16.01.01.006.54 and 16.01.01.008.14. The facility is a designated facility as defined in IDAPA 16.01.01.006.25.

The facility's Standard Industrial Classification (SIC) Code is 2874, phophatic fertilizers.

The AIRS Facility Subsystem source/pollutant classification for this facility is A1, which is greater than 100 tons per year (T/yr).

6. Regulatory Review

In summary, the following rules and regulations were reviewed for this project:

IDAPA 16.01.01.006.88	Significant;
IDAPA 16.01.01.201	Permit to Construct;
IDAPA 16.01.01.202	Application Procedures; and
IDAPA 16.01.01.220	Exemption Criteria

7. Fees

This facility is a major facility as defined in IDAPA 16.01.01.008.14 (*Rules for the Control of Air Pollution in Idaho*). Therefore, registration fees are applicable in accordance with IDAPA 16.01.01.526. Based on review of the August 6, 1997, Air Emission Database Master List, Kerr-McGee has paid registration fees for approximately 215 tons required to be registered in accordance with IDAPA 16.01.01.527. This modification will result in an increase of one ton per year of pollutants required to be registered.

8. Interbureau Coordination

A copy of this technical memorandum will be provided to Robert Baldwin, DEQ Air Quality Engineer, who is assigned to the OP for this facility.

9. AIRS

AIRS database entries are not required for PTC Exemptions.

RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, the Bureau recommends that Kerr-McGee be issued a modified section to OP #0420-0002-002 with the requested changes. No public comment period is recommended, no entity has requested a comment period, and PSD requirements do not apply because this is not a major modification.

SJR D:\RM\jrj... k-mcgee.TAM

Attachment

cc: Pocatello Regional Office
Source File COF

Appendix A

Modeling Data

02/09/98
16:13:44

*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

Kerr-McGee, Hammer Mill

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = POINT
EMISSION RATE (G/S) = .126000
STACK HEIGHT (M) = 4.5720
STK INSIDE DIAM (M) = .3048
STK EXIT VELOCITY (M/S)= 19.4042
STK GAS EXIT TEMP (K) = 293.1500
AMBIENT AIR TEMP (K) = 293.0000
RECEPTOR HEIGHT (M) = .0000
URBAN/RURAL OPTION = RURAL
BUILDING HEIGHT (M) = .0000
MIN HORIZ BLDG DIM (M) = .0000
MAX HORIZ BLDG DIM (M) = .0000

BUOY. FLUX = .002 M**4/S**3; MOM. FLUX = 8.741 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
10.	.1977E-01	5	1.0	1.0	10000.0	15.02	3.07	3.03	NO
100.	54.19	3	3.0	3.0	960.0	10.49	12.58	7.63	NO
200.	49.49	5	4.0	4.0	10000.0	9.01	11.69	6.37	NO
300.	66.98	5	1.0	1.0	10000.0	15.02	17.16	9.20	NO
400.	65.68	5	1.0	1.0	10000.0	15.02	22.21	11.22	NO
500.	69.93	6	1.0	1.0	10000.0	14.09	18.17	8.82	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 10. M:

545.	70.54	6	1.0	1.0	10000.0	14.09	19.67	9.40	NO

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	70.54	545.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

Grain loading — 0.02 grain/dscf

hourly

This results in hourly emissions of 0.42 lb/hr ←

regardless of throughput.

Annual

$0.42\ lb/hr \left(8760\ hr/yr \times \frac{1\ ton}{2000\ lb}\right) = 1.84\ ton/yr$ ←

Ambient Impact

Max 1hr normalized impact = $\frac{70.54\ \mu g/m^3}{\text{screen2 output}}$

24 hr

$\left(\frac{70.54\ \mu g/m^3}{1\ lb/hr} \times \underset{\text{emission rate}}{0.42\ lb/hr} \times \underset{\text{persistence factor}}{0.4}\right) = 11.9\ \mu g/m^3$ ←

Annual

$\left(\frac{70.54\ \mu g/m^3}{1\ lb/hr} \times 0.42\ lb/hr \times 0.08\right) = 2.4\ \mu g/m^3$ ←